phase. Shake until dissolved, dilute to volume with mobile phase, and immediately inject the solution into the liquid chromatograph.

(iii) *System suitability requirements*—(*a*) *Tailing factor.* The tailing factor (*T*) is satisfactory if it is not more than 1.5 for blue dextran.

(*b*) *Efficiency of the column.* The efficiency of the column (*n*) is satisfactory if it is greater than 1,500 theoretical plates for blue dextran.

(*c*) *Coefficient of variation.* The coefficient of variation (S_R in percent) of five replicate injections of blue dextran is satisfactory if it is not more than 4 percent.

If the system suitability requirements have been met, then proceed as described in §436.360(b) of this chapter.

(iv) *Calculations.* Calculate the percent of high molecular weight polymer content as follows:

$$\text{High molecular weight polymer content in percent} = \frac{H_u \times P_s \times 0.1}{H_s \times C_u}$$

H_u=Height of the high molecular weight polymer peak in the chromatogram of the sample (at a retention time equal to that observed for the standard);

H_s=Mean height of the high molecular weight polymer peaks in the chromatograms of the high molecular weight polymer working standard;

P_s=High molecular weight polymer content of the high molecular weight polymer working standard solution in micrograms per milliliter; and

C_u=Milligrams of sample per milliliter of sample solution.

[50 FR 48399, Nov 25, 1985; 50 FR 53308, Dec. 31, 1985; 51 FR 2478, Jan. 17, 1986, as amended at 55 FR 11583, Mar. 29, 1990]

§442.17 Ceftizoxime sodium.

(a) *Requirements for certification*—(1) *Standards of identity, strength, quality, and purity.* Ceftizoxime sodium is the sodium salt of [6*R*-[6α, 7β(*Z*)]]-7-[[(2,3-dihydro-2-imino-4-thiazolyl) (methoxyimino)acetyl]amino]-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid. It is so purified and dried that:

(i) Its ceftizoxime content is not less than 850 micrograms and not more than 995 micrograms of ceftizoxime per milligram on an anhydrous basis.

(ii) Its moisture content is not more than 8.5 percent.

(iii) Its pH in an aqueous solution containing 100 milligrams per milliliter is not less than 6.0 and not more than 8.0

(iv) It gives a positive identity test.

(v) It is crystalline.

(2) *Labeling.* It shall be labeled in accordance with the requirements of §432.5 of this chapter.

(3) *Requests for certification; samples.* In addition to complying with the requirements of §431.1 of this chapter, each such request shall contain:

(i) Results of tests and assays on the batch for ceftizoxime content, moisture, pH, identity, and crystallinity.

(ii) Samples, if required by the Director, Center for Drug Evaluation and Research: 10 packages, each containing approximately 500 milligrams, and 1 package containing approximately 5 grams.

(b) *Tests and methods of assay*—(1) *Ceftizoxime content.* Proceed as directed in §436.345 of this chapter, preparing the sample solution and calculating the ceftizoxime content as described in paragraphs (e)(1) and (g)(1), respectively, of that section.

(2) *Moisture.* Proceed as directed in §436.201 of this chapter.

(3) *pH.* Proceed as directed in §436.202 of this chapter, using an aqueous solution containing 100 milligrams per milliliter.

(4) *Identity.* The high-pressure liquid chromatogram of the sample determined as directed in paragraph (b)(1) of this section, compares qualitatively to that of the ceftizoxime working standard.

(5) *Crystallinity.* Proceed as directed in §436.203(a) of this chapter.

[49 FR 49285, Dec. 19, 1984, as amended at 55 FR 11583, Mar. 29, 1990]

§442.17a Sterile ceftizoxime sodium.

(a) *Requirements for certification*—(1) *Standards of identity, strength, quality, and purity.* Ceftizoxime sodium is the sodium salt of [6*R*-[6α,7β(*Z*)]]-7-[[(2,3-dihydro-2-imino-4-thiazolyl) (methoxyimino) acetyl]amino]-8-oxo-5-thia-1-azabicyclo [4.2.0]oct-2-ene-2-carboxylic acid. It is so purified and dried that:

(i) If the ceftizoxime is not packaged for dispensing, its ceftizoxime content is not less than 850 micrograms and not more than 995 micrograms of ceftizoxime per milligram on an anhydrous basis. If the ceftizoxime is packaged for dispensing, its ceftizoxime content is not less than 850 micrograms and not more than 995 micrograms of ceftizoxime per milligram on an anhydrous basis and also, each container contains not less than 90 percent and not more than 115 percent of the number of milligrams of ceftizoxime that it is represented to contain.

(ii) It is sterile.

(iii) It is nonpyrogenic.

(iv) Its moisture content is not more than 8.5 percent.

(v) Its pH in an aqueous solution containing 100 milligrams per milliliter is not less than 6.0 and not more than 8.0.

(vi) It gives a positive identity test.

(vii) It is crystalline.

(2) *Labeling.* It shall be labeled in accordance with the requirements of §432.5 of this chapter.

(3) *Requests for certification; samples.* In addition to complying with the requirements of §431.1 of this chapter, each such request shall contain:

(i) Results of tests and assays on the batch for ceftizoxime content, sterility, pyrogens, moisture, pH, identity, and crystallinity.

(ii) Samples, if required by the Director, Center for Drug Evaluation and Research:

(*a*) If the batch is packaged for repacking or for use in the manufacture of another drug:

(*1*) For all tests except sterility: 10 packages, each containing at least 500 milligrams.

(*2*) For sterility testing: 20 packages, each containing equal portions of approximately 300 milligrams.

(*b*) If the batch is packaged for dispensing:

(*1*) For all tests except sterility: A minimum of 10 immediate containers; or if each container contains less than 1 gram of ceftizoxime, a minimum of 20 immediate containers.

(*2*) For sterility testing: 20 immediate containers, collected at regular intervals throughout each filling operation.

(b) *Tests and methods of assay*—(1) *Ceftizoxime content.* Proceed as directed in §436.345 of this chapter.

(2) *Sterility.* Proceed as directed in §436.20 of this chapter, using the method described in paragraph (e)(1) of that section.

(3) *Pyrogens.* Proceed as directed in §436.32(b) of this chapter, using a solution containing 50 milligrams of ceftizoxime per milliliter.

(4) *Moisture.* Proceed as directed in §436.201 of this chapter.

(5) *pH.* Proceed as directed in §436.202 of this chapter, using an aqueous solution containing 100 milligrams per milliliter.

(6) *Identity.* From the high-pressure liquid chromatograms of the sample and the ceftizoxime working standard determined as directed in paragraph (b)(1) of this section, calculate the adjusted retention times of the ceftizoxime in the sample and standard solutions as follows:

$$\text{Adjusted retention time of ceftizoxime} = t - t_a$$

where:

t = Retention time measured from point of injection into the chromatograph until the maximum of the ceftizoxime sample or working standard peak appears on the chromatogram; and

t_a = Retention time measured from point of injection into the chromatograph until the maximum of nonretarded solute appears in the chromatogram.

The sample and the ceftizoxime working standard should have corresponding adjusted ceftizoxime retention times.

(7) *Crystallinity.* Proceed as directed in §436.203(a) of this chapter.

[48 FR 46271, Oct. 12, 1983; 48 FR 49656, Oct. 27, 1983, as amended at 55 FR 11583, Mar. 29, 1990]

§ 442.18 Cefuroxime sodium.

(a) *Requirements for certification*—(1) *Standards of identity, strength, quality, and purity.* Cefuroxime sodium is the sodium salt of (6*R*,7*R*)-3-carbamoyloxymethyl-7-[(2*Z*)-2-(2-furyl)-2-methoxyiminoacetamido]cepha-3-em-4-carboxylic acid. It is so purified and dried that:

(i) Its potency is not less than 855 micrograms and not more than 1,000 micrograms of cefuroxime activity per milligram on an anhydrous basis.